

**REMARKS**

The Examiner's final Office Action of July 14, 2004 has been received and its contents reviewed. The Applicants wish to thank the Examiner for the courtesies extended to their representative during the personal interview of September 28, 2004 and for the agreement to enter the above amendments. Accordingly, claims 1, 7 and 24 have been amended to further distinguish the invention from the teachings of the Medina, Riegl and Yahav references and to remove the formality rejection, under § 112 (second paragraph), as to a lack of antecedent basis. Claims 1-5, 7-10 and 24 remain pending, with claims 11-23 having been canceled as being directed to a non-elected invention. Claims 1, 7 and 24 are independent. As a result of the above amendment and the arguments below (presented during the personal interview), reconsideration of this instant application is respectfully requested.

The Examiner's indication that claim 24 would be allowed upon overcoming the formality rejection, under § 112, is greatly appreciated. Therefore, since the antecedent basis for the "color image" has been corrected by the instant amendment, allowance of at least claim 24 now earnestly solicited.

Referring now regard to the Examiner's new ground of rejection of:

Claims 1-5 and 7-10 and, under § 103(a), as being obvious in view of the combination of teachings of Medina ('530), Riegl ('567) and the newly cited Yahav et al. (WO '111) reference,

this rejection is traversed for the reasons advanced in detail in the Amendment of April 29, 2004 and for the additional reasons set forth below and as presented during an interview between Applicant's representative and the Examiner on September 28, 2004. At the conclusion of the interview, the Examiner agreed that the present amendments to independent claims 1 and 7, in combination with the remarks submitted herein, render claims 1 and 7 allowable over the prior art of record. Specifically, the rangefinder of claim 1 as presently amended includes the following features:

a light source for projecting the light on the object;

a shutter positioned between the light source and the object which can open and close freely and blocks the light that has been projected from the light source when closed;

a camera for receiving the part of the projected light that has been reflected from the object;

a distance-measuring sensor by measuring the distance to the object; and

a controller for controlling optical output power of the light source and/or exposure conditions of the camera based on range information about the object,

wherein the controller uses the output of the distance-measuring sensor as an item of the range information about the object, and

wherein the controller selectively controls the open and closed states of the shutter to at least prevent damage to the object when the object is positioned close to the light source. (Emphasis added)

However, a review of Medina reveals that the patentee is concerned with creating three-dimensional images of an object on a display system 19 in which a shutter 24 is positioned between objects 15, 16 and the detector camera 13 such that the reflected light 28 from the object is modulated by the opening and closing of shutter 24 in accordance with a waveform resulting from the reflected light pulses 28. This apparatus and process enables the “relative” distance from the object to be displayed as a variation of intensity of reflected light onto each pixel 27 of the detector camera 13. This system is not concerned with protection of the objects when too close to the light source nor is this system concerted with the actual distance of the objects from the camera. To that point the patentee specifically states (see column 4, lines 27-30, 34-6) that the “these differences in successive pulses will provide adequate information to determine relative distances of different objects from the camera.” (Emphasis added)

In contrast to this teaching, Riegl teaches (column 5, line 21, to column 7, line 8) controlling the laser for safety reasons and for determining the accuracy of the distance measurement, i.e., the longer rise time constants (of laser operation) and higher time constants for the input circuit enable greater accuracy in distance measurement with a favorable signal-to-noise ratio. Therefore, the Applicants again assert that one of ordinary skill in the prior art would not have been motivated to provide the camera of

Medina with the teachings of Riegl, i.e., provide control the optical output of Medina based upon the range information about the object in order to obtain “good accurate ranging” as asserted by the Examiner, since Medina has no concern for the accuracy of the distance to an object, but instead is only that the image be displayed with a degree of three-dimensions to the viewer (see column 1, line 49, to column 2, line 10). Note also that Riegl does not suggest that the distance measurement apparatus therein can be used in an apparatus for acquiring three-dimensional images of an object, like Medina.

The Applicants further note that the Examiner, in the final Office Action, has not responded to this argument, raised in the April 29<sup>th</sup> Amendment, in traversal of the combination of teachings of Medina and Riegl, as is explicitly required by MPEP Chapter 707.07(f), when the combination of references (Medina and Riegl) is maintained, as was done by the Examiner at page 3, line 4, to page 4, line 4, of the final Office Action.

Turning to the Examiner’s newly cited reference Yahav et al., cited to allegedly remedy the deficiency of the combination of Medina and Riegl in failing to teach a shutter positioned between the light source and the objects, the Applicants also traverse the combination of Yahav et al. with Medina and Riegl. Specifically, the Applicants note that there must be some suggestion to combine the teachings, provided by the references themselves or by the Examiner, and further, the proposed combination must not render the prior art unsatisfactory for its intended purpose, and, still further, the proposed modification must not be such that the proposed modification would change the principle of operation of a reference, as outlined in MPEP Chapter 2143.01.

The Examiner attempts to provide such reasoning, allegedly in Yahav et al., by stating that one of ordinary skill in the prior art would have found it obvious to provide the camera in Medina with a shutter placed between the light source and the object “in order to obtain good accurate ranging with the a relatively low power consumption of the light source.” However, such reasoning is inconsistent with the teachings of Medina discussed above, and, further, if the proposed modification were made, then the combination would change the device of Medina completely with regard to the purpose to which it was intended by changing its very the principle of operation.

Specifically, Yahav et al. teach essentially two embodiments of a camera for creating three dimensional depictions of objects in which the images contain accurate depth (distance) information for the objects (see page 3). In the first embodiment (Figures 1, 2B, 2C, 10, 15) the camera employs a first modulator (44) between the light source (40) and the objects (26) and a second modulator (34, 52, 122) between the objects (26) and the sensor array (22, 112). In the second embodiment (Figure 2A) only a modulator (52) between the objects (26) and the sensor array (22) is utilized. In each of these embodiments, the modulators enable an optimization of the distance measurement (page 3 to page 5, line 8).

Again, the Applicants wish to emphasize that Medina is only interested in the “relative” distances of the objects from the camera and to that end employs only single shutter between the objects and the sensor array, and further employs a normalization technique in its relative distance determination (see column 4, lines 31-66). Since Medina does not intend its device for use in determining accurate distance measurements between objects and a camera, to combine the teachings of Yahav et al. with those of Medina would be contrary to the intended use of the camera of Medina and would render camera changed in its principle of operation for its intended purpose by changing the methodology of its operation. That is, since Yahav et al. do not use the modulator (44) alone (between the light source and objects) as part of its invention, any combination of teachings of Yahav et al. and Medina would employ either the single modulator (Figure 2A) between the objects and the sensor array (just like Medina), or employ the two-modulator system (see Figures 1, 2B, 2C, 10, 15) as discussed above.

Upon employing the two-modulator system, the Applicants urge that the very principle of operation of Medina would change. That is, the “normalized” distance measurement system of the Medina would have to be replaced with the optimization system of Yahav et al. employing two modulators to provide a system of depicting objects with accurate distances in three dimensions. Such a modification of Medina is contrary to its intended use as a three dimensional camera in which only the relative distances from the camera are necessary for operation. That is, not only would a shutter

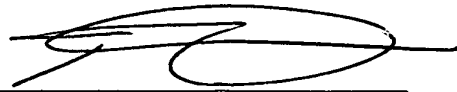
(modulator) be positioned between the objects and the light source (as suggested by Yahav et al.), but a shutter (modulator) would also be necessary between the objects and sensor array of Medina along with a controller of capable of effecting accurate dimensional determinations, per the teachings of Yahav et al., to coordinate the accurate dimensional measurements. Clearly, replacement of the control system of Medina with the two-modulator (and control) system of Yahav et al. would change the basic operating principle of Medina.

Therefore, without some reason or motivation for modifying the teachings of Medina without changing the basic operating principle of Medina for its intended purpose, a *prima facie* case of obviousness has not been established with regard to the independent claims 1 and 7 being obvious to one of ordinary skill in the prior art in view of the teachings Medina, Riegl and Yahav et al. For the above reasons, the rejection of claims 1-5 and 7-10, under § 103(a), based upon the teachings of Medina, Riegl and Yahav et al. is not appropriate and must now be withdrawn.

While the present application is now believed to be in condition for allowance, should the Examiner find some issue to remain unresolved, or should any new issues arise, which could be eliminated through discussions with Applicants' representative, then the Examiner is invited to contact the undersigned by telephone in order that the further prosecution of this application can thereby be expedited.

Respectfully submitted,

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